Restoring Anadromous Fish Habitat in Big Canyon Creek Watershed

Anadromous Fish Habitat Restoration in the Nichols Canyon Subwatershed

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Restoring Anadromous Fish Habitat in Big Canyon Creek Watershed;
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Annual Report 2001

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NICHOLS CANYON SUBWATERSHED STEELHEAD TROUT HABITAT IMPROVEMENT PROJECT

2001 SUMMARY REPORT

BPA Intergovernmental Contract No. 00000631-00001, Project No. 99-15

ABSTRACT

Big Canyon Creek historically provided quality spawning and rearing habitat for A-run wild summer steelhead in the Clearwater River subbasin (Fuller, 1986). However, high stream temperatures, excessive sediment and nutrient loads, low summer stream flows, and little instream cover caused anadromous fish habitat constraints in the creek. The primary sources of these nonpoint source pollution and habitat degradations are attributed to agricultural, livestock, and forestry practices (NPSWCD, 1995). Addressing these problems is made more complex due to the large percentage of privately owned lands in the watershed.

Nez Perce Soil and Water Conservation District (NPSWCD) seeks to assist private, tribal, county, and state landowners in implementing Best Management Practices (BMPs) to reduce nonpoint source pollutants, repair poorly functioning riparian zones, and increase water retention in the Nichols Canyon subwatershed. The project funds coordination, planning, technical assistance, BMP design and installation, monitoring, and educational outreach to identify and correct problems associated with agricultural and livestock activities impacting water quality and salmonid survival. The project accelerates implementation of the Idaho agricultural water quality management program within the subwatershed.

INTRODUCTION

NPSWCD developed the Nichols Canyon Subwatershed Steelhead Trout Habitat Improvement Project to assist in the enhancement of steelhead trout natural production in the Big Canyon watershed by improving salmonid spawning and rearing habitat. The project began in the spring of 1999 with funding from a grant through the Bonneville Power Administration. The area was identified as a NPSWCD priority area through a locally led process that uses public input to prioritize resource concerns within the district. The Nichols Canyon Project also meets goals and objectives outlined in the NPSWCD Five Year Resource Conservation Plan.

The project provides technical assistance in developing, designing, and installing BMPs as well as to provide cost-share dollars to landowners for BMPs not funded through other programs. In addition, the NPSWCD uses the BPA funds to supplement the Idaho State Agricultural Water Quality Program cost-share funds on erosion reduction and riparian enhancement BMPs. BMP types and extents used in this project were identified in the *Environmental Assessment Plan* (NPSWCD, 1995).

Due to consecutive years of poor agricultural prices, agricultural and livestock producers have limited financial resources for the installation of BMPs. Conservation programs available through federal and state resources provide cost-share for a portion of selected BMP installation. However, cost-share is not available for all of the BMPs needed to improve fisheries habitat. In addition, landowners do not have the financial resources to provide their part of the installation contribution. This project allows for accelerated land treatment implementation on non-irrigated cropland, Animal Feeding Operations (AFOs), forestland, and riparian areas with an expanded area. This adds to ongoing work to provide resource protection throughout the entire watershed.

The Big Canyon Creek watershed proposal coordinates with other watershed partners including: Natural Resources Conservation Service (NRCS), Lewis County Soil and Water

Conservation District, Idaho Fish and Game (IDFG), University of Idaho (UI), Nez Perce County Commissioners, Clearwater Focus Program, Clearwater Basin Weed committee, and Nez Perce Tribe Water Resources (NPTWRP), Fisheries Resource Management, and Land Services Departments.

DESCRIPTION OF PROJECT AREA

Nichols Canyon subwatershed incorporates the lower 24,351 acres of the approximately 85,000 acre Big Canyon watershed. The major drainages into this 10 miles of Big Canyon Creek include Nichols Canyon and Bear Creek, as well as two unnamed tributaries. Numerous intermittent creeks are also present during yearly spring runoffs and peak flows. Elevation ranges from 3,200 to 950 feet. Average annual precipitation varies with the elevation, but ranges from 20 to 28 inches per year. Little Canyon Creek is not included in this project area.

Over 94% of the land within the subwatershed is privately owned (22,915 acres). The remaining land ownership includes Bureau of Land Management (1,006 acres), Nez Perce Tribe (277), and the state of Idaho (153 acres).

Over 50% of the subwatershed acres are used as cropland (12,217 acres). Rolling plateaus of non-irrigated cropland typify the upland areas. The NPSWCD 1995 *Farming Practices Survey Report for Big Canyon Creek Watershed* found that winter wheat is the top crop produced in the area, followed by spring barley and legumes. Most watershed agricultural producers use a three year crop rotation and shank in an average of 100 lbs./ac of anhydrous as their nitrogen fertilizer (NPSWCD, 1995). Overall, only 43% of those surveyed reported soil testing to determine their specific fertilizer requirements (NPSWCD, 1995). The majority of those who did soil test, did so on a three year sampling frequency (NPSWCD, 1995). Based on sampling data, the NPSWCD's *Big Canyon Creek Water Quality Report Summary* (1995) hypothesized that upper Nichols subwatershed may contribute more than its share of nitrates into the Big Canyon system.

After leaving the uplands, drainages then flow through U-shaped canyons with steep walls. Many of these canyon areas are classified as rangelands. Almost 43% of the subwatershed is classified as rangeland (10,375 acres). These rangeland areas have relatively inaccessible canyon floors and are moderately to heavily grazed. The 6% of forestland acres in the subwatershed are usually on the steep canyon slopes and drainages. These areas have been historically and/or recently logged. Riparian vegetation is generally sparse in the accessible areas of the watershed.

Additional land uses within the project area include pastureland (29 acres) and urban lands (214 acres) which include the town of Peck, Idaho.

Slopes from in the watershed range from 3-25%. Cropland soils on the upland areas include Nez Perce, Uhlorn, and Powwahkee which were formed under prairie conditions and Taney, Setters, and Southwick loams which were originally forested, but cleared of timber to allow for cultivation (Hahn, unpub). The prairie soils are moderately well drained, however, the subsoil clay reduces permeability which results in springtime saturated soils and subsequent increased soil erosion.

Cut-over soils, specifically the Taney soils, also have a subsoil characteristic which restricts water and root movement into the subsoil. Setters subsoils have a high clay content which also results in low water permeability. During wet periods, perched water tables in these soils move water laterally down slope, thereby producing sidehill seeps. Often, the naturally low pH of the cut-over soils is further depressed by the application of acidifying nitrogen fertilizers. For pH

below 5.5, soil aggregation may also be decreased, leading to increased soil losses and sediment delivery.

Gwin, Kettenbach, Meland, and Riggins, the major rangeland soils, are well drained and contain large amounts of rock fragments which limit their cropland and grazingland use. Lack of grazing management during the wet periods can result in compaction and downslope soil movement on steep slopes.

Forestland soils in the watershed include Klickson and Keuterville with Agatha inclusions. The soils are well drained and found on steep north and east canyon sideslope aspects. These soils have severe sedimentation potential when disturbed. Primary soil disturbance is generally due to logging activities.

Since it includes the lower part of Big Canyon Creek, the Nichols Canyon subwatershed area provides important habitat for both anadromous and resident fish. Anadromous fish species identified in the watershed include wild Snake River Basin A-run steelhead, Snake River fall chinook salmon, and possibly the recently reintroduced coho salmon. Resident fish include rainbow trout, brook trout, speckled dace, chiselmouth, northern squawfish, redside shiner, bridgelip sucker, and paiute sculpin (Fuller etal, 1986). As with many anadromous streams in the Columbia River Basin, salmon and steelhead populations have declined significantly from historic levels.

Both the steelhead and fall chinook salmon are listed as “threatened” by the National Marine Fisheries Service (NMFS) under the Endangered Species Act (ESA). The ESA considers both the fall chinook salmon and the steelhead within the Clearwater subbasin to be part of the Snake River evolutionary significant unit (ESU). Since chinook primarily spawn below the North Fork Clearwater confluence, Big Canyon Creek’s habitat and water quality play a significant role in the overall long-term success. Considerable potential exists for improving anadromous fish populations in Nichols Canyon subwatershed area of Big Canyon Creek (Kucera et al. 1983).

METHODS

This project addresses its goals and objectives by installing BMPs on agricultural and livestock lands which address identified resource concerns on those lands. BMPs allow the treatments necessary for agricultural non-point sources to move toward attainment of water quality standards and beneficial uses and remove Big Canyon Creek from the Idaho 303(d) list.

The decision to install BMPs on private lands ultimately rests with the landowner. NPSWCD provides technical assistance to the landowner by completing field inventories to determine resource problems and then developing reasonable and prudent alternatives to solving the problems. The NRCS Field Office Technical Guide (FOTG) is the guiding document in determining the BMP alternatives and their positive and negative effects on the land, water, air, and wildlife resources.

Conservation plans are developed by NRCS Certified Conservation Planners. Planners work directly and closely with the landowners in order to address resources problems. The conservation plans then guide in the development of landowner contracts in order to implement BMPs. The development of conservation plans on private, tribal, and other lands allows for needed restoration and protection actions to meet desired goals for improving fish habitat in the overall watershed protection plan. Conservation plan development efforts in the project are selected by a priority ranking system which focuses on areas determined to be most critical to fish. Development of conservation plans follow NRCS FOTG protocols and involves a nine step process:

1. Identify resource problems through field visits
2. Identify objectives regarding use, treatment, and management of land
3. Inventory natural resources and their conditions
4. Analyze resource information and identify causes of resource problems
5. Develop alternative treatments
6. Evaluate alternatives
7. Select alternative
8. Implement alternative
9. Monitoring and evaluation of implemented alternative

Individual landowners maintain BMPs at their own cost throughout the life of the long-term contract. Landowner conservation plans and resulting contracts explain the operation and maintenance required for each BMP thorough the NRCS standards, specifications, and designs. Annual BMP inspections during the contract length provide the landowner with ongoing technical assistance as well as yearly qualitative and quantitative field monitoring of all BMPs installed and/or practiced.

PROJECT OBJECTIVES

Objective 1: Review Plans and Modify when needed

Minor modifications were implemented after a review of all the financial, contractual, and administrative aspects of the Nichols Canyon project. Highlights include:

- NPSWCD will continue to require NRCS standards and specifications for all BMPs in the project.
- Applications will continue to be rank according to NPSWCD's priorities including site proximity to stream, relative benefit of practice to project goals, and practice feasibility.
- 100% cost-share practices will continue to be installed by an NPSWCD-approved contractor. NPSWCD Conservationist retains and supervises contractors for these practices.
- 75% cost-share may be installed by any contractor or the landowner/operator themselves. However, the practice must still meet NRCS specifications.
- Practices with less than 100% BPA cost-share may combined with other funding cost-share opportunities. The total cost-share for a practice may not exceed 100% of the practice cost. NPSWCD Conservationist retains and supervises contractors if the combined cost-share is 100%.

Objective 2: Continue Landowner/Operator Participation and Education in the Project

One on one meetings with the landowners occurred throughout the year to discuss concerns, projects, and practices, especially when BMPs were being constructed. The annual status reviews also provided a means to talk with the landowners about specific resource or project concerns and to provide additional outreach and technology transfer.

A quarterly newsletter was sent to over 200 landowners and operators in the Big Canyon watershed. The newsletter included articles about project applications, BMP requirements, fish habitat needs, wildlife issues, threatened and endangered species, erosion control issues, and various other conservation related topics. A brochure about Big Canyon anadromous fish habitat issues and water quality was also created for public distribution.

An estimated 1,500 people visited an educational display booth on water quality and soil health issues created for the four day Nez Perce County Fair. Another educational display was presented on anadromous fish habitat improvements in Nez Perce County at the Idaho Association of Conservation Districts Annual Convention. Over 400 people attended this convention for all conservation districts in Idaho.

Through the conservation planning process and personal contacts, two of the subwatershed landowners also became involved with a state funded project to complete a quantitative and qualitative soil health monitoring project.

Objective 3: Complete BMP Plans and Ensure Regulatory Compliance

- The project is operating under NEPA compliance supplemental analysis received in May 2001 which requires that no further NEPA documentation is needed.
- When required, Clean Water Act (CWA) 404 stream alteration permit applications were sent to the Army Corps of Engineers (ACOE) and the Idaho Department of Water Resources (IDWR). No projects were adversely impacted by the permits.
- Cultural resource determination requests were submitted to the State Historic Preservation Officer (SHPO) for all ground disturbing BMPs. Although several BMP project sites required further field visits, no projects were adversely impacted.
- The development of conservation plans addresses and documents compliance with federal and state regulations including threatened and endangered species, wetlands, cultural resources, instream work, and special aquatic sites.

Objective 4: Supervise and Inspect Installation of BMPs

Four additional conservation plans and contracts were written in the subwatershed area in 2001. Efforts were concentrated primarily towards the installation of BMPs. Currently, 1,960 acres are under contract within the subwatershed.

Under this project, design, installed, and finaled over 1,000' of riparian area fencing, approximately 5 acres of critical erosion area grass seedings, 325 tree and shrub plantings in riparian areas, 50 channel vegetation plantings, 2000' of geotextile fabric installation on critically eroding areas, three ponds for wildlife, one shallow water area for wildlife, one offsite watering facility, seven water and sediment control structures, one sediment basin, 1000 feet of grassed waterway, one livestock stream crossing, and one waste management system for an animal feeding operation including a covered manure storage facility, roof runoff management system and fencing.

In order to address the resource concerns addressed in the lands, management practices are often required in the contracts, but not cost shared. All BMPs installed last year were also being maintained at the landowner's expense. Management BMP practices occurred on 1,098 acres of cropland. These practices are to decrease sediment, fertilizer, and pesticide delivery into the streams and to improve water quality and soil health. Cropland management practices include residue management, contour farming, conservation crop rotation, nutrient management, and pest management. Pasture and grazing management practices occurred on 182 acres. Upland wildlife habitat management occurred on 358 acres, wetland habitat management on 2 acres, and eleven acres were fenced to exclude livestock.

Additional joint projects in the subwatershed involved work with Nez Perce County Community Service a flood mitigation project to increase wildlife habitat, install bat and bird boxes, increase tree and shrub planting success, and to control noxious weed infestations. A Memorandum of Understanding and Project Agreement was also developed with the Nez Perce Tribe's Earth Conservation Corps/Salmon Corps to install critical area BMP practices on several sites. The Corps works to give teenagers work skills in conservation related areas.

Impediments to BMP installation consisted primarily of contractor difficulties, which was alleviated by altering the BMP construction installation process. The limited availability of engineering design assistance was addressed by the NPSWCD's BPA Conservationist receiving NRCS job approval authority to plan, design, and final a variety of BMPs.

Objective 5: Project Monitoring

Annual status reviews were conducted on all BMPs under contract. These yearly reviews were completed after the critical erosion period. Their purpose was to qualitatively evaluate BMP condition, effectiveness, and maintenance. These evaluations act as a means of trend monitoring. Quantitative measurements were taken when appropriate. Examples of qualitative measurements include measurements of gullies caused by concentrated flows, residue measurements, or planting success rates. The ongoing BMP effectiveness monitoring also included photo documentation of project sites before and after installation. These photos will assist in assessing the long-term success of the installed practices.

Cooperative efforts from the NRCS, BLM, Nez Perce Tribe, and ISCC provide water quality monitoring in Big Canyon Creek. In addition, the NPSWCD stream temperature monitoring plan includes collecting stream temperatures Bear Creek and Nichols Canyon.

The gauge temperature collection sites scheduled for installation in January 2002 include the headwaters of Nichols Canyon, Bear Creek, Sixmile Canyon, Cold Springs, and Big Canyon, as well as the mouth of Bear Creek. Temperature collection data is being collected by other agencies at the mouth of Sixmile Creek and Big Canyon Creek and in the mainstem Big Canyon Creek.

Objective 6: Documentation and Report Writing

The project's quarterly and financial reports sent to BPA throughout the year will continue through 2002. A final completion report will be completed in December 2002.

NPSWCD's BPA conservationist also participated in the development of the Clearwater Subbasin Summary and attended the Rolling Provincial Review Meetings. Three BPA proposals were also written, visited and discussed, presented, responded to, presented again, and responded again to CBFWA and NWPPC.

CONCLUSIONS

The conservation planning and BMP design, installation, and monitoring will continue through 2002. The public outreach and education efforts will also continue through the newsletters, displays, and personal contacts.

NPSWCD will also continue coordination and cooperation with several local, state, and federal agencies in the Big Canyon watershed including the NRCS, National Marine Fisheries Service, US Forest Service, BLM, Idaho Department of Fish & Game, Idaho Department of Environmental Quality, Idaho Department of Lands, Nez Perce Tribe, Idaho Soil Conservation Commission, Idaho Department of Corrections, City of Peck, Nez Perce County Commissioners, and other Conservation Districts.

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